

AMENDMENT

Please enter the following amendments:

IN THE SPECIFICATION

On page 3, line 28, replace "stoichiometric" with --stoichiometric--;

on page 4, line 3, replace "kerosine" with --kerosene--.

IN THE CLAIMS

Cancel claims 1-9 without prejudice or disclaimer.

Please add claims 10-30 as follows:

-- 10. A method for steam reforming of a hydrocarbon comprising:

reacting a mixture of steam and a hydrocarbon over a supported catalyst at a temperature from about 650°C to about 900°C;

wherein said supported catalyst comprises a spinel support and a catalyst metal;

wherein said step of reacting a mixture of steam and a hydrocarbon is conducted at a residence time of less than about 0.1 second; and

wherein said step of reacting results in at least about 50% of hydrocarbon conversion and a CO selectivity of less than about 70%.

2/
11. The method of claim 10 wherein said catalyst metal is selected from the group consisting of rhodium, iridium, nickel, palladium, platinum, carbide of group VIb, and combinations thereof.

3/
12. The method of claim 11 wherein the steam to carbon ratio is from 0.9 to 2.5.

4/
13. The method of claim 11 wherein the hydrocarbon is a fuel selected from the group consisting of gasoline, diesel and JP-8.

AI 5/
14. The method of claim 11 wherein the hydrocarbon is a selected from the group consisting of alkanes, alkenes, alkynes, branched isomers, aromatics, saturated and unsaturated hydrocarbons, and combinations thereof.

6/
15. The method of claim 11 wherein said step of reacting results in about 50-95% of hydrocarbon conversion and a CO selectivity of about 20-70%.

7/
16. The method of claim 15 wherein the support comprises a magnesia passivation layer.

8/
17. The method of claim 15 wherein said support is made by a method comprising impregnating alumina with a solution containing magnesium.

9
18. The method of claim ~~17~~ wherein said catalyst metal comprises rhodium.

19
19. The method of claim ~~18~~ wherein said mixture of steam and hydrocarbon comprises water and methane.

11
20. The method of claim ~~19~~ wherein said mixture of steam and hydrocarbon consists of water and methane.

21
21. A method for steam reforming of a hydrocarbon comprising:
reacting a mixture of steam and a hydrocarbon over a supported catalyst at a temperature from about 600°C to about 1000°C;

wherein said supported catalyst comprises a spinel support and a catalyst metal;

wherein said step of reacting a mixture of steam and a hydrocarbon is conducted at a residence time of less than about 0.1 second;

wherein said mixture of steam and hydrocarbon has a steam to carbon ratio of greater than about 0.9 and less than 2.5;

wherein said method is continuously conducted for over 40 hours; and

wherein between about 26 hours time-on-stream and about 40 hours time-on-stream, the CO selectivity remains essentially unchanged and the hydrocarbon conversion changes less than about 5%.

13
22. The method of claim 21 wherein the steam to carbon ratio is from 0.98 to 2, and wherein said catalyst metal is selected from the group consisting of rhodium, iridium, nickel, palladium, platinum, carbide of group VIb, and combinations thereof.

14
23. The method of claim 22 wherein the hydrocarbon is a fuel selected from the group consisting of gasoline, diesel and JP-8.

15
24. The method of claim 22 wherein the hydrocarbon is selected from the group consisting of oxygenates, alkanes, alkenes, alkynes, branched isomers, aromatics, saturated and unsaturated hydrocarbons, and combinations thereof.

A1
16
25. The method of claim 22 wherein, after 40 hours of operation, electron microscopy shows no coke deposits on the catalyst and BET measurements detect no significant loss in surface area.

17
26. The method of claim 21 wherein the support comprises a magnesia passivation layer.

18
27. The method of claim 22 wherein said support is made by a method comprising impregnating alumina with a solution containing magnesium.

19
28. The method of claim 27 wherein said catalyst metal comprises rhodium.